Time Pulse Accessory

ME-9496

Introduction

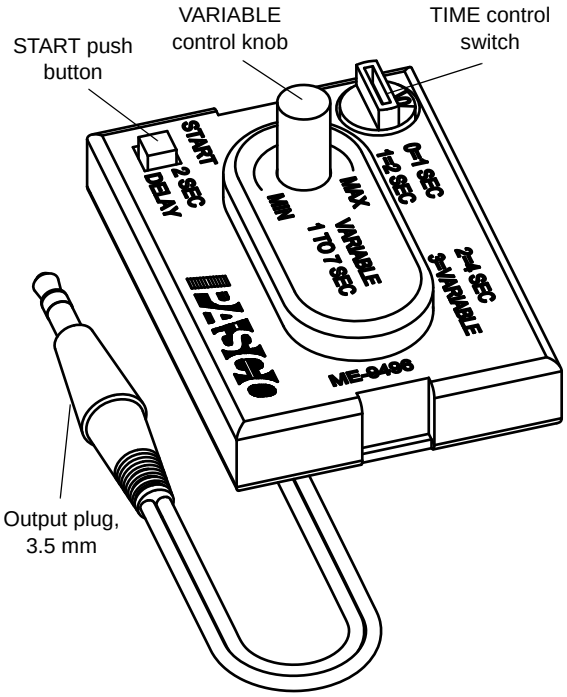
The PASCO Time Pulse Accessory is designed to activate the ME-9491Fan Accessory or the ME-9781 Variable Speed Motorized Cart for a selectable period of time. Since the Fan Accessory produces an approximately constant force, the Time Pulse Accessory can be used to perform motion studies of a cart under conditions of constant *acceleration* for a fixed time interval. When used with the Variable Speed Motorized Car, the same kind of studies can be done for constant *speed* conditions.

Controls

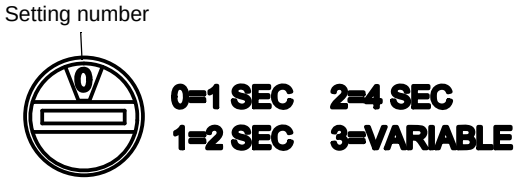
The Time Pulse Accessory has three controls: START, VARIABLE, and TIME. The TIME control switch is a four-position switch. The selected time interval is indicated by a small number visible in the "V"-shaped notch on the switch. The "0" position is a 1 second interval, the "1" position is a 2 second interval, "2" position is a 4 second interval, and the "3" position makes the VARIABLE control knob active.

Table 1: TIME Control Switch

Position	Result
0	1 SEC
1	2 SEC
2	4 SEC
3	VARIABLE



ME-9496 Time Pulse Accessory



TIME Control Switch settings

VARIABLE Control Knob

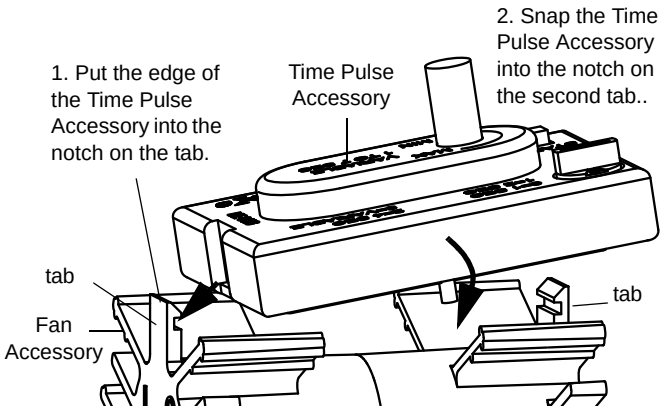
The VARIABLE control knob is a potentiometer that adjusts the time interval from less than one second to about seven seconds. Turn the VARIABLE control knob to MIN for the shortest time interval (less than one second) and turn the knob to MAX for the longest time interval. The position of the knob is approximately proportional to the time interval. For example, when the knob is halfway between MIN and MAX, the time interval is approximately 3.5 seconds.

Operation

Installing and Connecting the Time Pulse Accessory

Fan Accessory (ME-9491)

1. As shown in the figure, mount the Time Pulse Accessory onto the Fan Accessory by placing one edge of the case of the Time Pulse Accessory against one of the tabs at the top of the Fan Accessory. Rotate the case downward and firmly press the top of the case down to snap the other edge of the Time Pulse Accessory into the other tab on the top of the Fan Accessory.


1. Put the edge of the Time Pulse Accessory into the notch on the tab.
Time Pulse Accessory
2. Snap the Time Pulse Accessory into the notch on the second tab..
tab
Fan Accessory
tab

NOTE: Be sure that the ON/OFF switch for the Fan Accessory is in the *OFF* position before doing the next step.

2. Connect the plug of the Time Pulse Accessory cable to the External Input Port on the Fan Accessory (just below the ON/OFF switch). Once the plug is connected, flip the ON/OFF switch to *ON*.

Select the "0=1 SEC" time interval setting with the TIME Control Switch and gently press the START push button. *After a two second delay*, the Fan Accessory should turn on automatically and run for one second before turning off automatically.

Test the other time intervals on the TIME control switch in the same manner.

NOTE: When the TIME control switch is set to "3", select the time interval by using the VARIABLE control knob. Turn the knob to MIN for a time interval under one second, and turn the knob to MAX for a time interval of approximately seven seconds. When using the VARIABLE control knob, the time interval will be proportional to the position of the knob. For example, half-way between MIN and MAX is approximately 3.5 seconds.

Variable Speed Motorized Cart (ME-9781)

1. As shown in the figure, mount the PASCO ME-9496 Time Pulse Accessory on the Variable Speed Motorized Cart by inserting the studs on the bottom of the Time Pulse Accessory into the holes in the accessory tray of the cart

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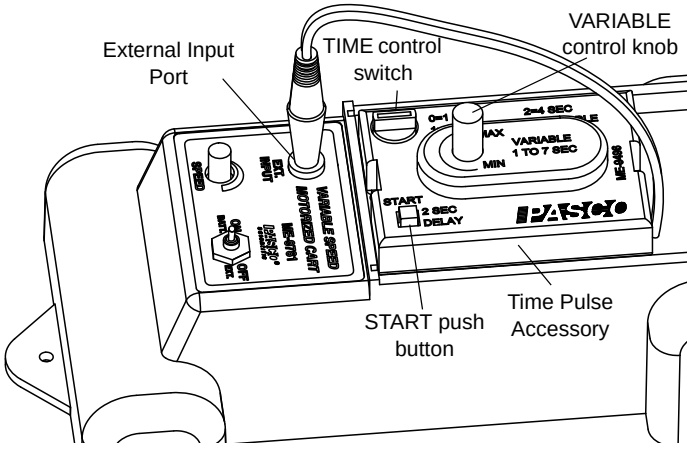

NOTE: Be sure that the ON/OFF switch for the Variable Speed Motorized Cart is in the *OFF* position before doing the next step.

2. Connect the plug of the Time Pulse Accessory cable into the External Input Port on the Variable Speed Motorized Cart. Once the plug is connected, flip the ON/OFF switch on the cart to *ON*.

3. Select the "0=1 SEC" time interval setting with the TIME Control Switch and gently press the START push button. *After a two second delay*, the Motorized Cart should turn on automatically and run for one second before turning off automatically.

Test the other time interval settings on the TIME control switch in the same manner.

Battery Replacement

The current drain of the ME-9496 is extremely low (typically a few nanoamps when not triggered). Although the coin-cell batteries inside the Time Pulse Accessory need to be replaced only when operation becomes erratic, regular replacement of the batteries every three to four years will insure that the Time Pulse Accessory is always ready to function.

To replace the coin-cell batteries, use a small Phillips head screwdriver to remove the two screws from the bottom of the ME-9496 case.

CAUTION: The inside of the Time Pulse Accessory has many parts that are sensitive to electrostatic discharge. Before touching the printed circuit board, touch a grounded metallic surface to discharge any accumulated charge.

Remember that the Fan Accessory and Variable Speed Motorized Cart rely on their own batteries for power, and not the internal batteries of the Time Pulse Accessory. Always check the external batteries and their connections before replacing the internal batteries

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NOTE: California Percholate Material Notice - special handling may apply.
See http://www.dtsc.ca.gov/hazardouswaste/percholate. The coil cell batteries may contain percholate and may require special handling when recycled or disposed of in California.

Specifications

Item	Value
Time intervals	1, 2, and 4 seconds fixed and <1 to 7 seconds variable
Fixed time accuracy	±15% (typically better than ±10%)
Repeatability	1%
Peak current capability	7 amps
Sustained current capability	2.5 amps
Battery life	approximately five years
Battery type (2)	CR-1220 lithium battery (or BR-1220 lithium battery)

Technical Support

For assistance with any PASCO product, contact PASCO at:

Address: PASCO scientific
10101 Foothills Blvd.
Roseville, CA 95747-7100

Phone: 916-786-3800 (worldwide)
800-772-8700 (U.S.)

Fax: (916) 786-7565

Web: www.pasco.com

Email: support@pasco.com

For the latest revision of this Instruction Manual, visit the PASCO web site and enter ME-9496 in the Search window.

Limited Warranty *For a description of the product warranty, see the PASCO catalog.* **Copyright** *The PASCO scientific 012-06729D Time Pulse Accessory Instruction Manual is copyrighted with all rights reserved. Permission is granted to non-profit educational institutions for reproduction of any part of this manual, providing the reproductions are used only in their laboratories and classrooms, and are not sold for profit. Reproduction under any other circumstances, without the written consent of PASCO scientific, is prohibited.* **Trademarks** *PASCO and PASCO scientific are trademarks or registered trademarks of PASCO scientific, in the United States and/or in other countries. All other brands, products, or service names are or may be trademarks or service marks of, and are used to identify, products or services of, their respective owners. For more information visit www.pasco.com/legal.*

Product End of Life Disposal Instructions:

This electronic product is subject to disposal and recycling regulations that vary by country and region. It is your responsibility to recycle your electronic equipment per your local environmental laws and regulations to ensure that it will be recycled in a manner that protects human health and the environment. To find out where you can drop off your waste equipment for recycling, please contact your local waste recycle/disposal service, or the product representative.

The European Union WEEE (Waste Electronic and Electrical Equipment) symbol (at right) on the product or its packaging indicates that this product **must not** be disposed of in a standard waste container.

Battery Replacement and Disposal Instructions:

Battery Disposal - Batteries contain chemicals that, if released, may affect the environment and human health. Batteries should be collected separately for recycling, and recycled at a local hazardous material disposal location adhering to your country and local government regulations. To find out where you can drop off your waste battery for recycling, please contact your local waste disposal service, or the product representative.

The battery or batteries used in this product are marked with the European Union symbol for waste batteries (at right) to indicate the need for separate collection and recycling. For small batteries, the symbol is printed on the packaging.